NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

RESIDUE MANAGEMENT, SEASONAL

(Acre)

CODE 344

DEFINITION

Managing the amount, orientation, and distribution of crop and other plant residues on the soil surface during part of the year, while growing crops in a clean tilled seedbed.

PURPOSES

This practice may be applied as part of a conservation management system to support one or more of the following:

- Reduce sheet and rill erosion.
- Reduce soil erosion from wind.
- Manage snow to increase plant available moisture.
- Provide food and escape cover for wildlife.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to all cropland and other land where crops are grown.

This standard includes residue management methods practiced during the part of the year from harvest until residue is buried by tillage for seedbed preparation. It applies to all residue management methods that do not meet the criteria in practice standards No-Till/Strip Till 329A, Mulch Tillage 329B and Ridge Till 329C.

CRITERIA

General Criteria Applicable to All Purposes Named Above:

Loose residue to be retained on the field shall be uniformly distributed on the soil surface. Where combines or similar machines are used for harvesting, they shall be equipped with spreaders capable of redistributing residues over at least 80 percent of the working width of the header.

The number, sequence, and timing of tillage and planting operations, and the selection of ground-engaging components, shall be managed to achieve the planned amount, distribution, and orientation of residue after planting or at other essential time periods. Acceptable alternative tillage sequences shall be initially determined by a residue budget using data on residue production by crops and residue reduction by tillage machines found in Nebraska Agronomy Technical Note No. 99 and/or NE-CPA-MP-10 “Crop Residue Estimator” found in Section I “Erosion Prediction” of the FOTG. Further adjustments shall be made, as needed during the tillage sequence based on field measurements of remaining residue.

Residues shall not be burned.

Additional Criteria to Reduce Sheet and Rill Erosion

The amount of residue needed to reduce erosion within the soil loss tolerance (T) or any other planned soil loss objective, shall be determined using current approved erosion prediction technology in Section I, Field Office technical Guide (FOTG). Partial removal of residue by means such as baling or grazing, shall be limited to retain the amount needed to achieve to achieve soil loss objectives. The remaining residue shall be maintained on the surface through periods when sheet and rill erosion has the potential to occur, or until planting, whichever occurs first. Soil loss calculations shall account for the effects of other practices in the conservation management system.

Any tillage that occurs during the management period shall be limited to methods, which leave

residue on the surface and maintain the planned cover conditions needed to achieve soil loss objectives.

Additional Criteria to Reduce Soil Erosion From Wind

The amount of residue needed to reduce erosion within the soil loss tolerance (T) or any other planned soil loss objective, shall be determined using current approved wind erosion prediction technology in Section I, Field Office technical Guide (FOTG. Partial removal of residue by means such as baling or grazing, shall be limited to retain the amount needed. The remaining residue shall be maintained on the surface through periods when soil erosion by wind has the potential to occur, or until planting, whichever occurs first. Soil loss calculations shall account for the effects of other practices in the conservation management system.

Any tillage that occurs during the management period shall be limited to methods, which leave residue on the surface and maintain the planned cover conditions to achieve soil loss objectives.

Additional Criteria to Manage Snow to Increase Plant Available Moisture

Stubble shall be left standing as high as possible by the harvesting operation, but not less than 6 inches in any case.

Stubble shall be maintained in a standing orientation over winter to trap and retain snow. Any tillage that occurs during this period shall be limited to undercutting tools such as blades, sweeps, or deep tillage implements such as rippers or subsoilers.

Loose residue may be removed providing that the remaining residue is left standing.

Additional Criteria to Provide Food and Escape Cover for Wildlife

The amount of residue, height of the stubble, and length of the management period necessary for meeting a minimum habitat index value as shown in Wildlife Habitat Quality Criteria in Section III of the FOTG or greater is achieved using the Wildlife Habitat Evaluation Guide for cropland. Residues shall not be removed unless removal would not adversely affect habitat values.Residues shall not be removed unless the Wildlife Habitat Evaluation determines that removal will not adversely affect habitat values.

Tillage shall be delayed until the end of the management period to maintain the food and cover value of the residue.

CONSIDERATIONS

Excess removal of plant residue by baling or grazing often produces negative impacts on resources. These activities should not be performed without full evaluation of impacts on soil, water, animal, plant, and air resources.

Production of adequate amounts of crop residue necessary for the proper functioning of this practice can be enhanced by selection of high residue producing crops and crop varieties, by the use of cover crops, and by adjustment of plant populations and row spacing.

When planting on a clean seedbed, exposure to erosion can be minimized by completing tillage and planting in a single operation, or by performing primary tillage no more than three days before planting.

When planting on a clean seedbed in areas with limited moisture, moisture for germination can be increased by completing tillage and planting in a single operation, or by performing primary tillage no more than three days before planting.

The effectiveness of stubble to trap snow increases with stubble height. Variable height stubble patterns may be created to further increase snow storage.

Leaving rows of unharvested crop standing at intervals across the field can enhance the value of residue for wildlife habitat.

PLANS AND SPECIFICATIONS

Specifications for establishment and operation of this practice shall be prepared for each field or treatment unit according to the Criteria, Considerations, and O&M described in this standard. Tillage/fertilizer placement/planting system type, ground cover, residue orientation, crops to be no-tilled/strip tilled, timeframe and other appropriate management requirements will be detailed.

Specifications shall be recorded using approved certification sheets, job sheets, narrative statements in the conservation plan, or other acceptable methods.

OPERATION AND MAINTENANCE

The Soil Condition Index (SCI) will be utilized to determine whether a positive or improved trend in soil condition/quality due to the operation and maintenance of long-term No-Till system. This worksheet is included with the Revised Universal Soil Loss Equation (RUSLE) program. A stand-alone copy of the Soil Condition Index (SCI) spreadsheet can be obtained from the Nebraska NRCS website under tools and aids at the following address: http://www.ne.nrcs.usda.gov/techresources/index.html